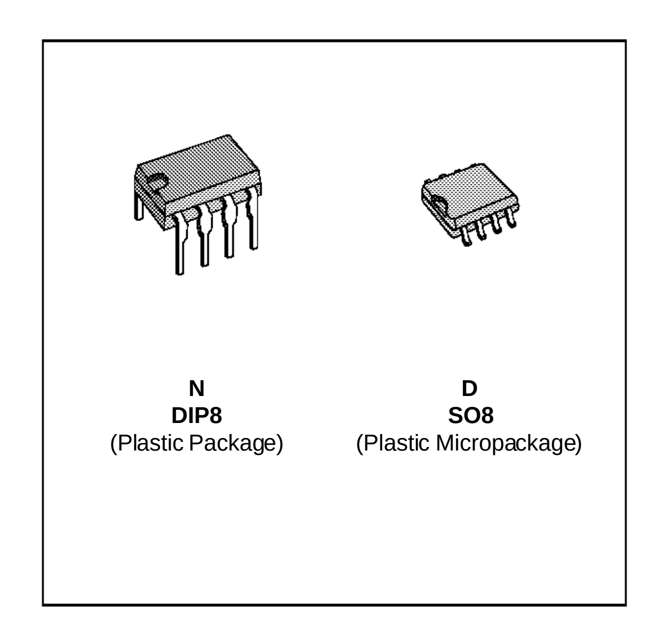


MC4558

WIDE BANDWIDTH DUAL BIPOLAR OPERATIONAL AMPLIFIERS

- INTERNALLY COMPENSATED
- SHORT–CIRCUIT PROTECTION
- GAIN AND PHASE MATCH BETWEEN AMPLIFIERS
- LOW POWER CONSUMPTION
- PIN TO PIN COMPATIBLE WITH MC1458/LM358
- GAIN BANDWIDTH PRODUCT (at 100kHz) 5.5MHz



N
DIP8
(Plastic Package)

D
SO8
(Plastic Micropackage)

DESCRIPTION

The MC4558 is a high performance monolithic dual operational amplifier.

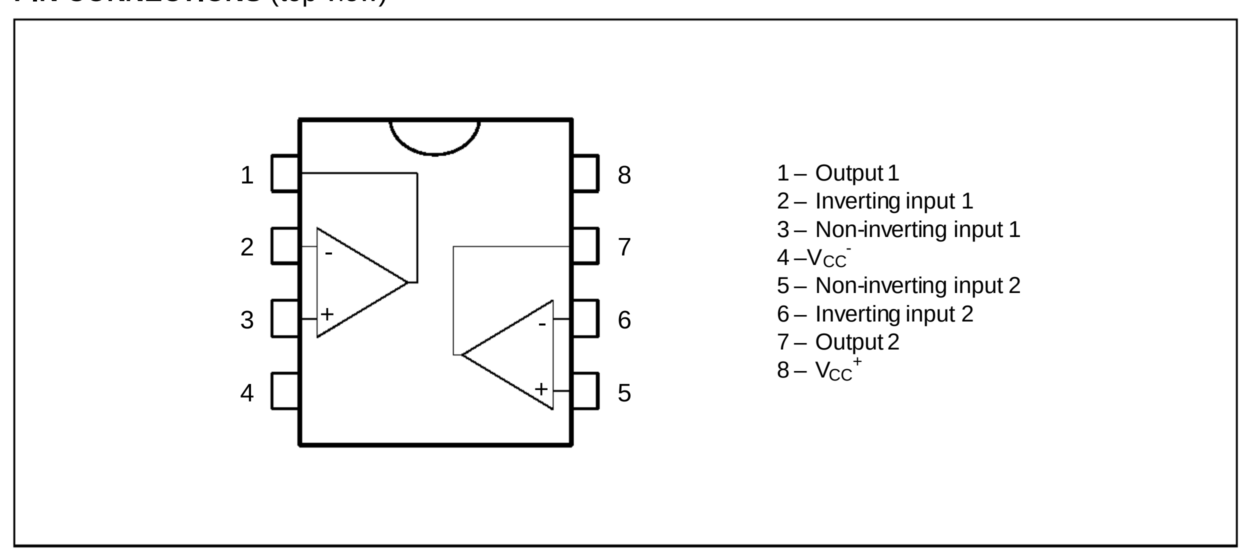
The circuit combines all the outstanding features of the MC1458 and, in addition, possesses three times the unity gain bandwidth of the industry standard.

ORDER CODES

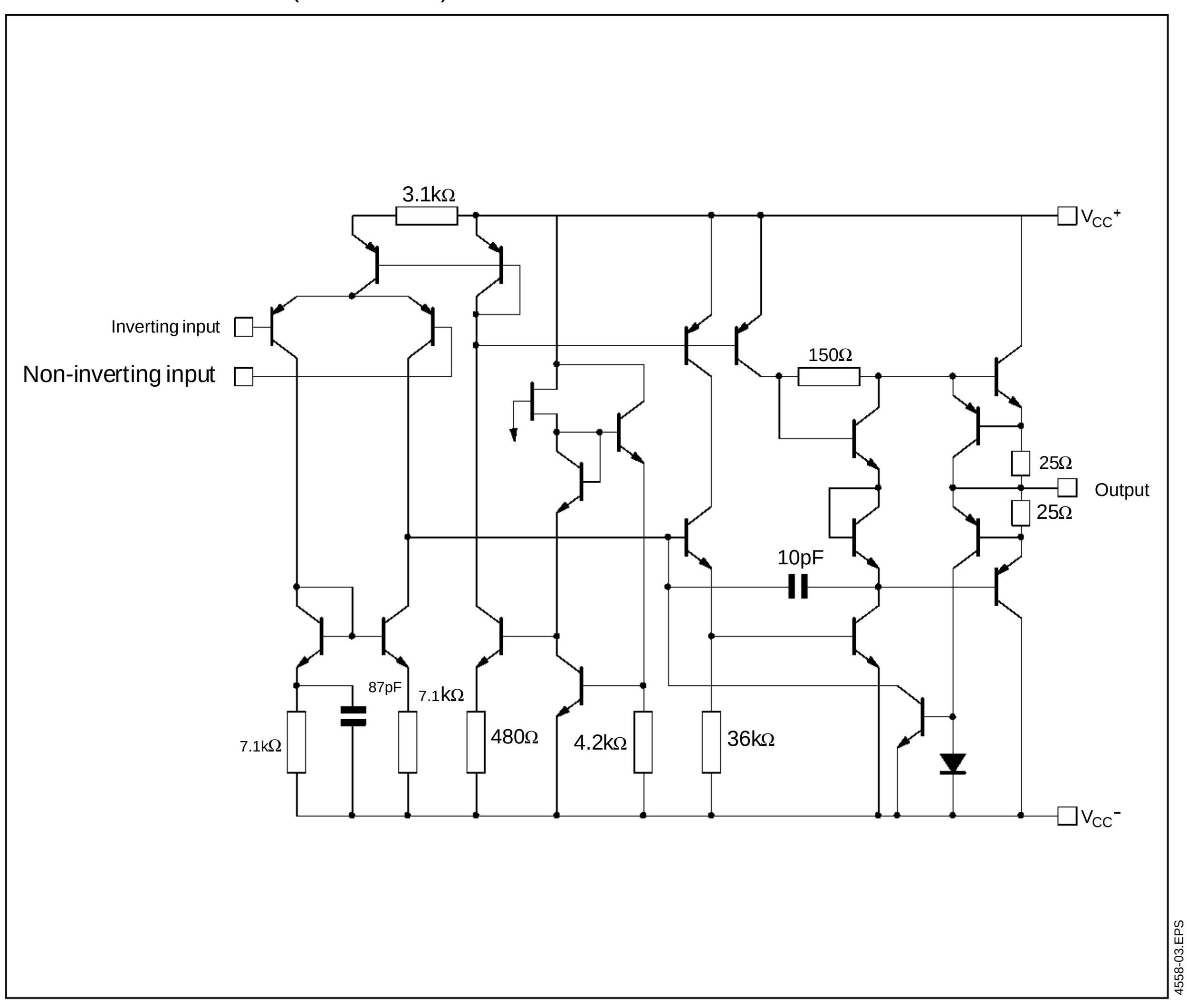
Part Number	Temperature Range	Pakcage N	Pakcage D
MC4558C	0^oC, $+70^oC$	•	•
MC4558I	-40^oC, $+105^oC$	•	•
Example : MC4558CN			

4558-01.TBL

PIN CONNECTIONS (top view)



SCHEMATIC DIAGRAM (1/2 MC4558)



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	MC4558I	MC4558C	Unit
V_{CC}	Supply Voltage	±22	±22	V
V_i	Input Voltage	±15	±15	V
V_{id}	Differential Input Voltage	±30	±30	V
P_{tot}	Power Dissipation	680	680	mW
	Output Short-circuit Duration	Infinite		
T_{oper}	Operating Free-air Temperature Range	–40 to +105	0 to +70	°C
T_{stg}	Storage Temperature Range	–65 to +150	–65 to +150	°C

4558-02.TBL

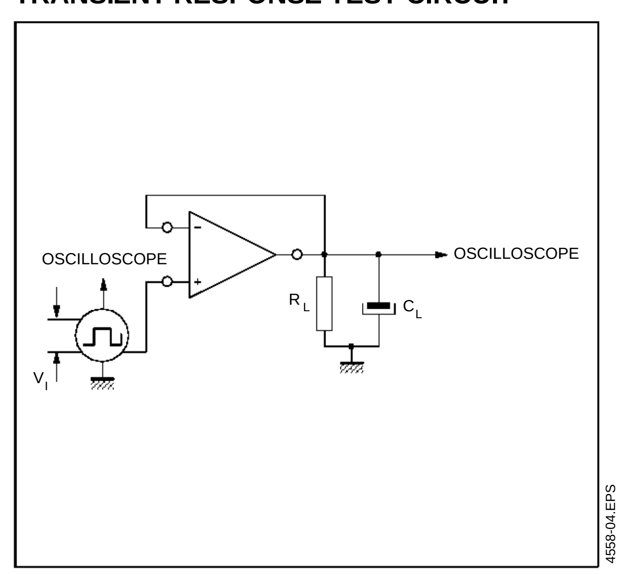
ELECTRICAL CHARACTERISTICS

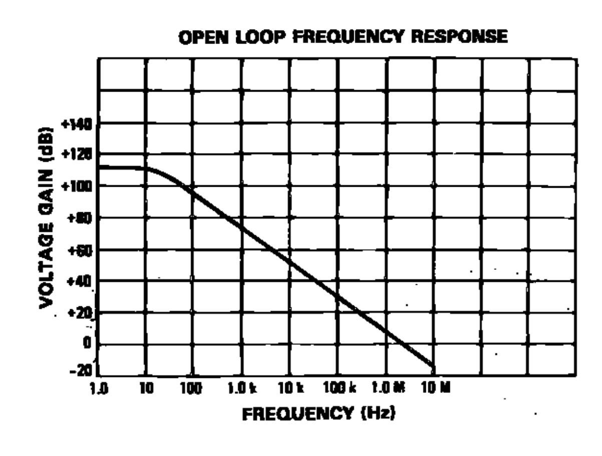
V_{CC} = ±15V, T_{amb} = 25°C (unless otherwise specified)

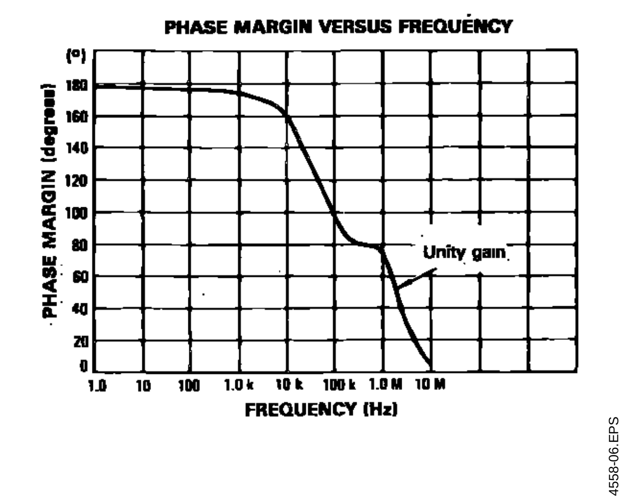
Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{io}	Input Offset Voltage ($R_S \leq$ 10 kΩ) T_{amb} = 25°C $T_{min.} \leq T_{amb} \leq T_{max.}$		 1	 5 6	mV
I_{io}	Input Offset Current T_{amb} = 25°C $T_{min.} \leq T_{amb} \leq T_{max.}$		 20	 100 200	nA
I_{ib}	Input Bias Current T_{amb} = 25°C $T_{min.} \leq T_{amb} \leq T_{max.}$		 50	 400 500	nA
A_{vd}	Large Signal Voltage Gain (V_O = ±10V, R_L = 2kΩ) T_{amb} = 25°C $T_{min.} \leq T_{amb} \leq T_{max.}$	 50 25	 200		V/mV
SVR	Supply Voltage Rejection Ratio ($R_S \leq$ 10kΩ) T_{amb} = 25°C $T_{min.} \leq T_{amb} \leq T_{max.}$	 77 77	 90		dB
I_{CC}	Supply Current, all Amp, no Load T_{amb} = 25°C $T_{min.} \leq T_{amb} \leq T_{max.}$		 2.3	 4.5 6	mA
V_{icm}	Input Common Mode Voltage Range T_{amb} = 25°C $T_{min.} \leq T_{amb} \leq T_{max.}$	 ±12 ±12			V
CMR	Common-mode Rejection Ratio ($R_S \leq$ 10kΩ) T_{amb} = 25°C $T_{min.} \leq T_{amb} \leq T_{max.}$	 70 70	 90		dB
I_{os}	Output Short-circuit Current	10	20	40	mA
V_o	Output Voltage Swing T_{amb} = 25°C R_L = 10kΩ R_L = 2kΩ $T_{min.} \leq T_{amb} \leq T_{max.}$ R_L = 10kΩ R_L = 2kΩ	 ±12 ±10 ±12 ±10	 ±14 ±13		V
SR	Slew Rate (V_I = ±10V, R_L = 2kΩ, C_L = 100pF, T_{amb} = 25°C, unity gain)	 1.5	 2.2		V/µs
t_r	Rise Time (V_I = ±20mV, R_L = 2kΩ, C_L = 100pF, T_{amb} = 25°C, unity gain)		 0.3		µs
K_{OV}	Overshoot (V_I = ±20 mV, R_L = 2kΩ, C_L = 100pF, T_{amb} = 25°C, unity gain)		 15		%
R_i	Input Resistance	0.3	2		MΩ
C_i	Input Capacitance		1.4		pF
R_O	Output Resistance		75		Ω
B	Unity Gain Bandwidth		2.8		MHz
GBP	Gain Bandwidth Product (V_I = 10mV, R_L = 2kΩ, C_L = 100pF, f = 100kHz, T_{amb} = 25°C)		 5.5		MHz
THD	Total Harmonic Distorsion (f = 1kHz, A_v = 20dB, R_L = 2kΩ, V_o = $2V_{pp}$, C_L = 100pF, T_{amb} = 25°C)		 0.008		%
e_n	Equivalent Input Noise Voltage (f = 1kHz, R_s = 100Ω)		12		$\frac{nV}{\sqrt{Hz}}$
V_{O1}/V_{O2}	Channel Separation		120		dB

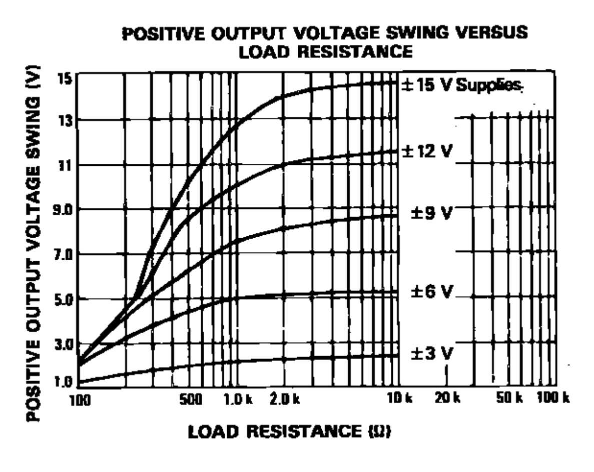
4558-03.TBL

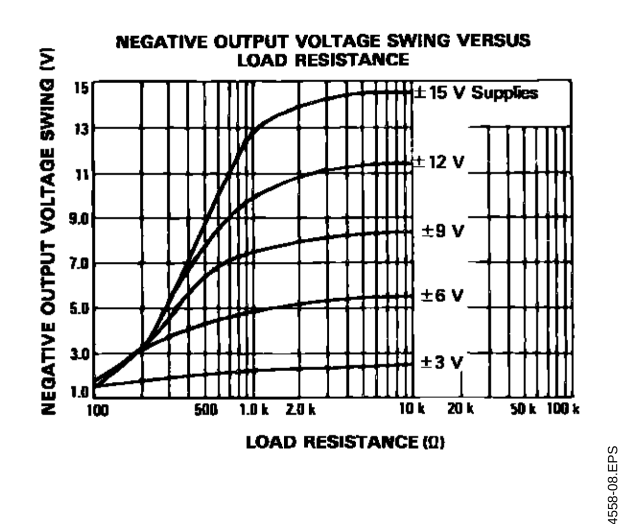
TRANSIENT RESPONSE TEST CIRCUIT

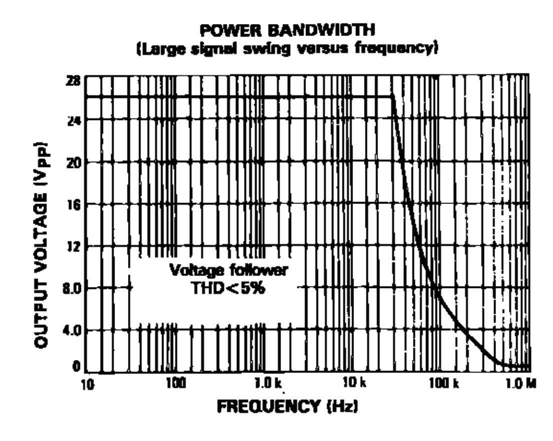






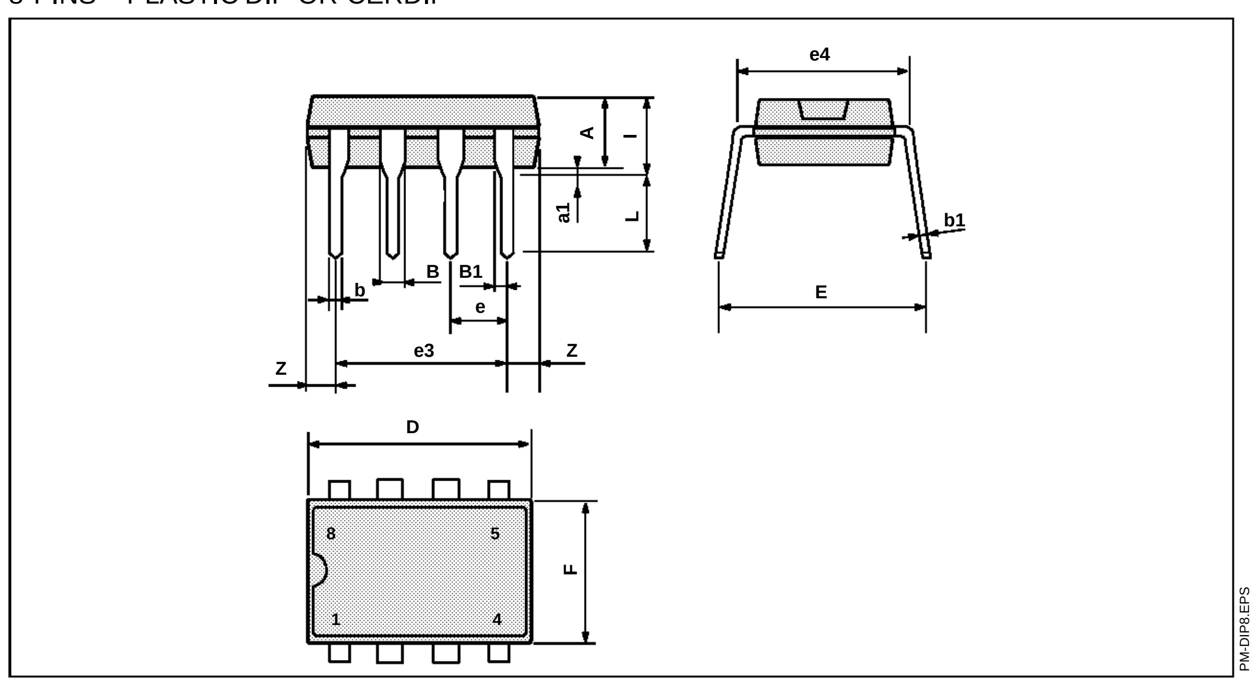






PACKAGE MECHANICAL DATA

8 PINS – PLASTIC DIP OR CERDIP

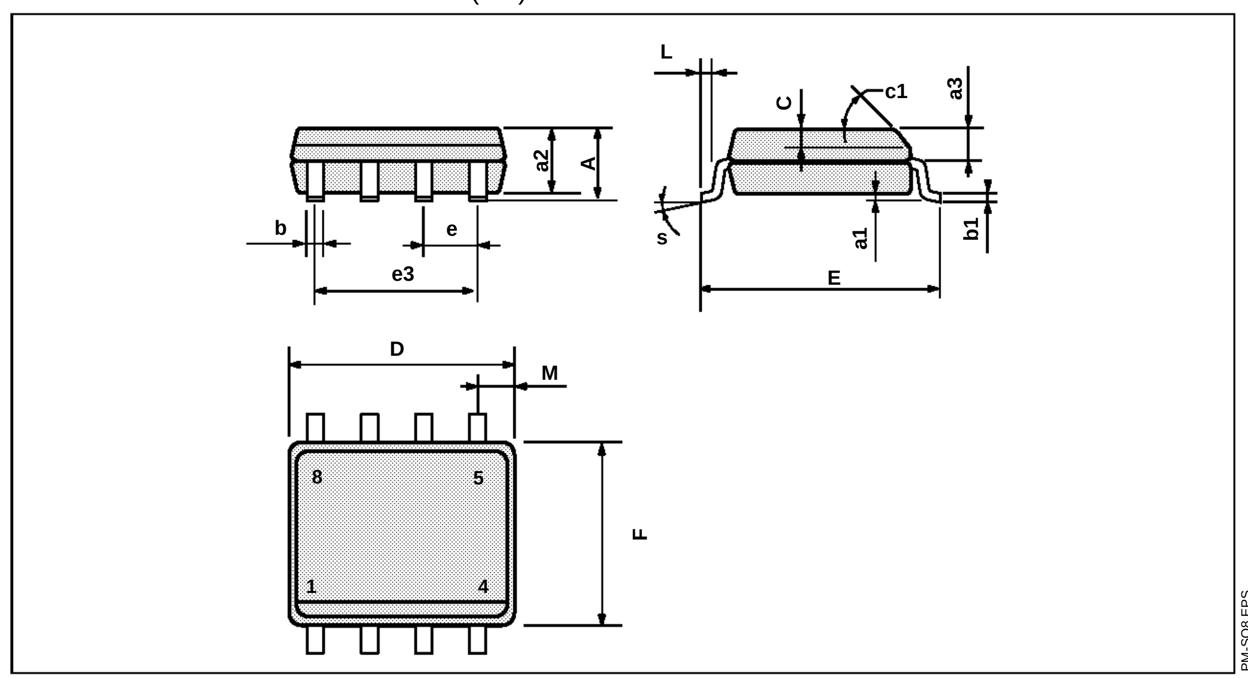


Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		3.32			0.131	
a1	0.51			0.020		
B	1.15		1.65	0.045		0.065
b	0.356		0.55	0.014		0.022
b1	0.204		0.304	0.008		0.012
D			10.92			0.430
E	7.95		9.75	0.313		0.384
e		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			6.6			0260
i			5.08			0.200
L	3.18		3.81	0.125		0.150
Z			1.52			0.060

DIP8.TBL

PACKAGE MECHANICAL DATA

8 PINS – PLASTIC MICROPACKAGE (SO)



Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
a3	0.65		0.85	0.026		0.033
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C	0.25		0.5	0.010		0.020
c1	45^{o} (typ.)					
D	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		3.81			0.150	
F	3.8		4.0	0.150		0.157
L	0.4		1.27	0.016		0.050
M			0.6			0.024
S	8^{o} (max.)					

SO8.TBL